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FEATURED Q&A

How Bright Is the Outlook for Mexico's Solar Energy Sector?

Q The International Finance Corporation on May 28 announced that it is providing $25 million and helping Mexico's development bank, Nacional Financiera (Nafin), to structure a $50 million loan for the construction of the 30-megawatt Aura I Solar project, Mexico's first private, large-scale solar plant. Statements by Nafin suggested that this was just the start of developing more solar energy plants under the country's new "small producer" regulatory model and estimates predict that the country's solar potential could reach 2,000 megawatts by 2020. Is Mexico's new regulatory model for these sorts of small projects the right formula? How does it compare to the regulatory models elsewhere in the region? What is the outlook for solar energy development in Mexico?

A Duncan Wood, director of the Mexico Institute at the Woodrow Wilson International Center for Scholars: "Mexico's solar energy industry has been punching below its weight up to this point in time so this new development is most welcome. As has been pointed out many times before, Mexico is blessed with one of the world's most favorable geographic positions for solar irradiation, with the northwest of the country representing an extraordinary opportunity. Baja California, for example, has an average daily solar irradiation rate of 6.4 kWh/m2. Compare this with an irradiation rate of only 3.6 kWh/m2 in the best parts of Germany, the country that has become the global leader in terms of installed solar power in recent years. But various obstacles, including technical, institutional, financial and social factors, to the development of the solar industry in Mexico have meant that only minimal investment has been made in recent years. The new model, allowing private solar plants with a net installed capacity of up to 30 megawatts to sell their power to the

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Peru Looks to Attract $1 Billion Investment in Oil Auction

Petroperú chairman Luis Ortigas said this week that the Andean nation hopes to attract more than $1 billion in investments when the government auctions 26 Amazon oil concession later this year. See story on page 2.

File Photo: Peruvian Government.

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ENERGY SECTOR BRIEFS

IDB Will Loan $7.2 Million to Rurelec for Peruvian Hydroelectric Project

London-based **Rurelec** will receive a $7.2 million loan from the Inter-American Development Bank to help finance its 5.3 MW Canchayllo hydroelectric project in central Peru, according to Business News Americas. The project, which is owned by **Cascade Hydro** in which Rurelec has a 70 percent stake, is now in an advanced stage of construction along the Pachacayo River and is scheduled to begin operation in early 2014. Rurelec is developing 40 MW of river plants in Peru.

Cuba to Build the Country's First Biofuel Power Plant

Cuba will build its first biofuel power plant which will generate 20 MW of energy from sugar cane residue, or bagasse, the *Latin American Herald Tribune* reported Sunday. The $60 million dollar plant is being built in the western province of Matanzas with Chinese technology and training for the operators. Currently, just 3.8 percent of Cuba's energy comes from renewable sources, but officials have said the island nation hopes to increase this number to 12 percent in the next eight years.

YPF to Join PDVSA and Chevron in Deltana Natural Gas Project

Venezuelan Oil Minister Rafael Ramírez announced on June 14 that Argentina's state oil company, **YPF**, will join Venezuela's **PDVSA** and U.S.-based **Chevron** in an offshore natural gas project at the Deltana Platform, according to the *Buenos Aires Herald*. YPF President Miguel Galuccio said that some of the project's gas will be exported to Argentina, which is developing a regasification terminal so that it can import liquid natural gas.

Oil & Gas News

BTG to Take $1.5 Billion Stake in Petrobras' Ventures in Africa

Grupo BTG Pactual, a Brazil-based bank, has agreed to pay $1.5 billion to form a joint venture in Africa with state oil company **Petrobras**, Bloomberg News reported last Friday. BTG will take a 50 percent stake in Petrobras' assets in Angola, Benin, Gabon, Namibia, Nigeria and Tanzania under the deal, with plans for the two companies to form a venture to explore and produce oil and gas. BTG said the deal is consistent with its strategy to diversify its holdings outside Brazil. Last year, the bank announced it would create a $1 billion equity fund focused on Africa. The move is also in line with the company's recent steps to enter into agreements with natural resource enterprises that have been saddled with high capital costs and debt. BTG signed an agreement in March with billionaire Eike Batista's struggling holding company **EBX Group Co.**, whose biggest unit is oil producer **OGX Petróleo e Gás Participações**, an early entrant in exploiting the country's subsalt hydrocarbon deposits. For its part, Petrobras has been trying to shed non-core assets to fund its $237 billion, five-year investment plan. But company CEO Maria das Graças Foster said earlier this year the company had overestimated demand for the assets, which were proving difficult to sell at good prices. Petrobras last week agreed to sell a 49 percent stake in hydroelectric generator **Brasil PCH SA** to **Cia. Energética de Minas Gerais** for about $302 million, Reuters reported. Rumors also circulated last week that it would be seeking buyers for its Peru assets, which consist mainly of two natural gas blocks, according to local daily *El Comercio*. In May, Petrobras rejected all offers for its Argentine assets after at least four months of talks with bidders, however. In related news, Petrobras announced Wednesday it had signed a non-binding letter of intent with **SINOPEC**, China's largest petrochemical company, to develop a joint study on the Premium 1 Refinery Project in the state of Maranhão. The refinery has been estimated to cost $20 billion and would handle some 300,000-barrels of oil per day, Reuters reported.

Foster

File Photo: Brazilian Government

Peru Hopes to Attract At Least $1 Billion in Amazon Oil Auction

The chairman of Peruvian state oil company **Petroperú**, Luis Ortigas, said the Andean nation hopes to attract over $1 billion in investments in an auction of 26 oil concessions that will be held later this year, state news agency Andina reported Monday. Ortigas said that he expects investments for exploration in each concession will be between $40 and $50 million. "If it were $50 million, we're talking about $1.3 billion for the exploration phase," Ortigas said June 13. In May, Peru began its first international auction in three years for nine offshore oil concessions which has attracted interest from 20 companies and potential investments of $450 million, according to Dow Jones. The auction of the 26 blocks in the Amazon was delayed due to the country's new prior consultation law, which requires the government to confer with indigenous groups before beginning projects that might affect their communities. Ortigas said Petroperú hopes to begin the consultations on July 26 and begin the auction before the end of the year. Consultations should take approximately 120 days according to the law. Ortigas also said that the government is looking to streamline the process for getting oil exploration permits by setting the deadline for approval of a required environmental permit at one year, instead of the three it can currently take. The changes are expected to take effect before Petroperú awards the nine concessions in October, according to Ortigas.

Peña Nieto Talks Energy Reform Bill, Private Investment in Pemex

Mexican President Enrique Peña Nieto said Monday that he is negotiating support for an energy bill that would allow foreign and private company participation in oil and gas exploration and production in Mexico and break state-owned **Petróleos Mexicanos**' monopoly in those areas, Bloomberg News reported. Although Peña Nieto refused to discuss specifics of the proposal, he said that Pemex would be able to develop some fields, with other companies developing others. In an interview Monday, Peña Nieto said that "It's obvious that Pemex doesn't have the financial capacity to be in every single front of energy generation … Shale is one of the areas where there's room for private companies, but not the only one." Production in Mexico has been in decline for the past eight years and faces another potential year of decline in 2013. Crude production in 2004 was 3.38 million barrels a day as compared to this month's production of 2.52 million barrels a day through June 9. Peña Nieto said he will send the energy bill to Congress by September when its regular sessions are set to resume and expressed optimism that the Pact for Mexico alliance will hold and pass the reform. On Wednesday, Carlos Capistrán, the chief economist for Mexico at the **Bank of America Merrill Lynch**, said that a good energy reform bill would allow private investment in Pemex which would increase gas production and exploration, as well as have an overall benefit for the county's economy, *Milenio* reported.

Peña Nieto

File Photo: Mexican Government.

Clashes Reduce Ecopetrol Crude Production in Southwest Colombia

Colombian state-oil company **Ecopetrol** on Sunday announced the suspension of crude production in the southwest region of Catatumbo following violent clashes in the town of Tibú between farmers and security forces, Xinhua News Agency reported. According to Harold Paéz, the superintendent of operations in the region, 90 percent of the company's pumping and extraction operations in the region have been shut down and around 80 workers were evacuated causing a loss of about 1,500 barrels of crude per day. Over 3,200 farmers have been involved in violent protests with forces attempting to eradicate illegal coca crops. According to the National Hydrocarbons Agency, Catatumbo is the area that contributed the most to increasing the Andean county's crude reserves last year, by approximately 31 million barrels. Paéz said that he requested security reinforcements, but hoped that the two sides could come to an agreement soon. The protestors on Monday submitted a proposal to the government asking for a dialogue. Meanwhile the army said it destroyed 15 hectacres of coca plants, which they claim belonged to the Revolutionary Armed Forces of Colombia. On Wednesday local daily *La Opinón* reported that ongoing protests in the region are still severly affecting the company's production.

Renewables News

Renewables in Region Can Meet 2050 Power Needs 22 Times: IDB

Latin America and the Caribbean has a large enough renewable energy endowment that it could meet its projected 2050 energy needs 22 times over, the Inter-American Development Bank said in a new report on renewable energy in the region. The paper, entitled "Rethinking Our Energy Future," was presented in Colombia on Tuesday at the Global Green Growth Forum Latin America and Caribbean. According to the report, lower prices and technological developments will continue to make renewable sources more competitive with conventional

Featured Q&A

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Federal Electricity Commission (CFE) under 20 year off-take agreements and have their power transmitted by the CFE's system, provides an important incentive to the sector. However, the question of pricing remains a major problem. Because the CFE has to purchase power at the lowest rate available, it means that the off-take agreements do not guarantee a pricing floor to the producer, severely compromising the profitability of the deal, particularly in the light of lower prices for natural gas-generated electricity. In the long run, however, with declining solar prices and improved technologies, I fully expect Mexico to become a solar superpower."

A **Brian J. Schmidly, president and CEO of Rio Grande Solar:** "The regulatory model for small producers is the right formula for solar photovoltaic (PV) growth for Mexico in the medium- to long-term without any incentives. However, given that Mexico still subsidizes its electricity rates, commercial and utility-scale solar PV will have a hard time competing with retail electricity rates in most of the country in the short-term. Having said that, though, there are pockets of opportunities today where solar PV can compete, like the DAC or residential utility rates and the occasional opportunity where solar PV displaces diesel generation rates, as was the case with the Aura I Solar project. The model is roughly similar to what we are seeing in the region, which is based primarily on net-metering legislation, approaches and standardized interconnection agreements. The same model is found in Brazil and, to a certain extent, Chile. One of the main differences is the higher mandate for 'low carbon' sources of energy in their matrix: The mandate in Mexico is to have 35 percent by 2024, 40 percent by 2030 and 50 percent by 2050. In Chile, for example, the mandate is 10 percent by 2024, which might increase depending on how this year's election turns out. It should be stated that the CFE already has enough generation to meet Mexican demand, so there is not an immediate deficit like in Chile that needs to be covered by renewables. In general, the 'small producer' solar PV opportunity is an opportunistic play for adventurous developers looking to position themselves for opportunities a couple of years away (unless incentives are introduced as part of the latest energy reform under consideration). However, there are certain regions where solar PV makes sense, and they are main-

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sources, and renewable energies offer good investment opportunities. Latin America presently generates 1.3 petawatt-hours of electricity and demand is expected to rise to between 2.5 and 3.5 petawatt-hours in 2050. A single petawatt hour is equivalent to 1 trillion kilowatt-hours, or three times Mexico's annual power demand, and renewable sources in the region have the potential to generate up 80 petawatt-hours of electricity by 2050. This figure accounts for production from solar, geothermal, wave, wind and biomass sources. Although Latin America uses more renewable energy than any other region in the world, in 2012 the region received only 5.4 percent of the $244 billion that was invested globally in renewable technologies. The report noted that while the region should work to modernize its policy and regulatory environment and seek to increase investment to promote development, renewable energy is already growing in the region. Walter Vergara, the head of the IDB's Climate Change Division, said, "We seek to promote concrete action and public-private partnerships, by putting into perspective the magnitude of available renewable sources, outlining their broaded benefits and illustrating policy options." Wind is one of the fastest growing sources in the region and biomass, solar, and wind sources are being increasingly used in Mexico and Brazil.

Vergara

File Photo: Universidad Nacional de Colombia

Pacific Hydro Will Invest $1.5 Billion in Wind Energy Projects in Brazil

Australian renewable energy company **Pacific Hydro** will invest nearly $1.5 billion in wind projects in Brazil over the next five years, Business News Americas reported on June 14. Last year, the company was ranked 30th in Brazil in the renewable energy market based on its installed capacity. The investment will help the company grow its Brazilian wind Over the next eight years, nearly 600 wind farms that will have a capacity of 16 GW are expected to be built in Brazil, a six-fold increase from the 2.5 GW that wind power currently contributes to the country's power grid. The federal energy planning company EPE has said that wind power will be the fastest growing energy source in Brazil during the next ten years. The growth in wind energy has been driven by increased competitiveness, including prices that fell as low as $43.30/MWh in an auction last December, but Pacific Hydro Brazil's general manager Adriana Waltrick noted that for the industry to be profitable, prices must stabilize. She said, "We believe that many projects recently awarded at energy auctions will have challenging implementation and operational conditions and might not have the economic returns desired by most investors." Pacific Hydro is also building a wind farm in Chile.

Political News

U.S., Cuba to Resume Bilateral Talks on Migration

The U.S. and Cuban governments are planning to restart talks next month on migration issues, the Associated Press reported Wednesday, citing an unnamed State Department official. Word of the talks came as diplomats from the two countries concluded discussions on resuming direct mail service between the nations. The State Department official, who lacked authorization to discuss the talks publicly, spoke on condition of anonymity and said the migration talks will begin on July 17 in Washington. In addition, Cuba's government said Wednesday in a statement that the talks aimed at restarting direct mail service, which was suspended in 1963, were "welcome" and "fruitful." The talks on migration are expected to focus on adherence to an agreement, implemented 16 years ago, in which the United States issues Cubans 20,000 immigration visas annually. Also at the talks, Cuba is expected to continue objecting to the United States' "wet foot, dry foot" policy in which Cuban migrants who reach land in the United States are allowed to stay, while those intercepted at sea are returned to Cuba. Havana has said the policy encourages Cubans to flee. Efforts at rapprochement between the two countries have stalled since the 2009 arrest of Alan Gross, a U.S. Agency for International Development subcontractor who was arrested after illegally bringing communications equipment to Cuba. For its part, Cuba has been seeking the release of four intelligence agents who are imprisoned in the United States. Geoff Thale, a Cuba analyst at the Washington Office on Latin America, told the AP that the restarting of talks on direct mail service and migration indicate that relations between the two countries may be improving. "These are modest but sensible steps," he told the wire service. "What's significant is less the steps themselves than the fact that there is movement in the relationship. It's a real break from the status quo."

At the talks, Cuban diplomats are expected to continue objecting to the United States' "wet foot, dry foot" policy.

Ecuador Lawmakers Approve Restrictions on Media

Ecuadorean lawmakers have approved a controversial measure that imposes new restrictions on the country's print and broadcast media, BBC News reported last Friday. The National Assembly, which is controlled by supporters of President Rafael Correa, overwhelmingly approved the measure, and sent it to Correa, who has had a number of disputes with journalists and has been accused of trying to muzzle the press. The legislation creates a new watchdog agency that will be responsible for "surveillance, auditing, intervention and control" of the media and will have "sanctioning capacity" over newspapers, BBC News reported. Correa's opponents say the measure amounts to gagging the media, but his supporters say it is needed to prevent media monopolies and abuse. Correa's government has said it is an effort toward "socialization and democratization" of the media. In addition to establishing the media monitoring body, the legislation will revise radio and television frequencies so that a third of them are reserved for government broadcasters. Another third will be allocated to private broadcasters and the remainder will be for community groups, most of which are indigenous. The measure also will require media organizations to issue public apologies and pay fines if they are found to be guilty of "media lynching," which the legislation defines as defaming individuals or companies." National Assembly Speaker Mauro Andina told *El Comercio* that the distribution of broadcast frequencies will be "equitable." However, Correa's opponents said the legislation is an effort by the president to restrict freedom of expression.

Economic News

Venezuela Boosting Supplies of Dollars to Importers

Venezuela's government will increase the supply of U.S. dollars to importers in an effort to alleviate shortages of several goods, the country's central bank chief, Armando León told Bloomberg News Tuesday. "In the next two months, the supply of goods and services should normalize," León told the news service in a phone interview from Caracas. León said he expected the move to slow inflation, which rose a record 6.1 percent in May. Dollars will be made available through auctions that will start in the second half of the year. Small- and medium-sized companies as well as individuals will be allowed to bid, he said. Unable to buy dollars at the government's official rate, importers have turned to the black market in order to buy the needed U.S. currency, which is five times more expensive than the official rate. The South American country devalued its currency by 32 percent in February. Last month and this month, the government of President Nicolás Maduro has sought to alleviate shortages by providing more dollars to small- and medium-sized businesses through the government's official exchange system, added León. "The final alternative system to the official Cadivi system will be expanded and will be made as efficient as possible," he told the news service. The government is working on a plan to let banks and companies sell dollars on an alternative platform called Sicad. The scarcity index, which tracks the types of staple products that are out of stock in Venezuela, declined to 20.6 percent last month from 21.3 percent in April, a five-year high.

Piñera Seeking Reforms to Chile's Pension System

Chilean President Sebastián Piñera said Wednesday that he is seeking to reform the country's private pension system in an effort to make it more competitive and increase returns, Reuters reported. Piñera said his government would officially unveil the proposal soon and declined to provide additional details. Many Chileans complain that while they pay large and often mandatory contributions into the pension funds, they do not receive adequate pensions. The pension funds are the South American country's largest institutional investors and have been credited with developing its stock market. Chile's pension system is seen as a main issue ahead of the country's Nov. 17 presidential election. Piñera, whose four-year term ends in March, is barred from running for a second term. Former President Michelle Bachelet, who is again seeking the presidency, has also included a plan for creating a government-run pension system in her campaign platform, as have other left-wing candidates. Chile's private pension system was created by the brother of Piñera, who was a cabinet official under then-dictator Augusto Pinochet. The system, worth about $164.96 billion as of May, includes six private pension groups administering five funds that are invested in stocks and fixed-income securities.

Piñera

File Photo: Chilean Government.

POLITICAL & ECONOMIC BRIEFS

One Million Protestors Swarm the Streets of Brazil

An estimated 1 million protesters flooded the streets of dozens of Brazilian cities on Thursday in massive demonstrations that dwarfed even the huge protests that happened earlier this week, the Associated Press reported. The protests, which were sparked last week by the announcement of an increase in public transportation fares in São Paulo, have ballooned as Brazilians air grievances about government corruption, poor pub-lic services and rising prices. President Dilma Rousseff canceled a trip to Japan and called an emergency meeting of her cabinet this morning to deal with the demonstrations.

Argentina's Supreme Court Strikes Down Parts of Judicial Reform

Argentina's Supreme Court ruled Monday that parts of the four judicial reform bills promoted by President Cristina Fernández de Kirchner and approved by Congress in May are unconstitutional, according to Bloomberg News. The court struck down changes that would have required popular elections for the council of magistrates that hires and punishes judges. The court ruled that such a change cannot be implemented through law, but require changes to the Constitution.

Venezuela's Credit Rating Cut

Standard & Poor's cut its credit rating for Venezuela, saying that division within the government of President Nicolás Maduro could hamper the country's ability to get its flagging economy back on track, Bloomberg News reported. The ratings agency lowered its rating for Venezuela to B, five notches below investment grade, with a negative outlook.

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ly locations with the highest electricity rates in the country, like Baja California and the northwest. There are other opportunities with companies and municipalities that have a corporate social responsibility mandates. The overall outlook for solar PV in Mexico is very good, but I would be surprised if more than 100-150 megawatts of solar PV is built in 2013."

A **Arnaldo Vieira de Carvalho, senior energy specialist at the energy division of the Inter-American Development Bank:** "During the past several years, PV prices have dropped dramatically, completely changing the worldwide prospects for solar energy, not only for Latin America and the Caribbean. However, given the excellent solar potential found in Latin America, starting with Mexico, Chile and Brazil, solar energy developments are gradually changing the focus toward the region. The good news is that subsidies to encourage grid-connected solar energy projects are no longer necessarily required as was the case until recently, for example in Europe. This is particularly relevant for a region such as Latin America and the Caribbean where renewables are already being used at a much greater proportion than any other region in the world and where many other renewables used to be more cost-competitive than solar energy. A good example of an IDB-funded project that reflects this situation is the recently approved loan package for $41.4 million to private sector firms for the construction, operation, and maintenance of three PV solar power plants in the Atacama Desert in northern Chile."

A **Amit Ronen, director of the GW Solar Institute and professor of public policy at George Washington University:** "While relatively small compared to recent installations in the American Southwest, the Aura I Solar project could mark the beginning of a major investment in harnessing Mexico's abundant solar resources. Solar in Mexico is not a question of when, but rather how much and how fast. Mexico is blessed with large swaths of flat desert ideal for concentrated solar power installations along with high levels of solar irradiation that can make rooftop installations more economical. According to Mexico's Energy Ministry (SENER), with solar resources 60 percent better than those of Germany, developing just one percent of Mexico's land area could technically supply power for the entire country. Moreover, as the first developing country with binding climate change targets, combined with a requirement that about a third of its electricity come from renewables by 2024, the high-level policies are in place to get decision-makers to focus on tapping Mexico's estimated 45 gigawatts of solar potential. Even with these advantages, Mexico still faces many of the same challenges as other countries in Latin America and around the world. Mexico's utility monopoly is a major barrier to developing and financing both utility-scale and distributed solar projects. A lack of adequate incentives has also contributed to Mexico's anemic solar investment, although increasing tariffs and costs on fossil fuels, particularly the 58 percent of energy derived from oil, could help level the playing field for emerging alternatives like solar."

> "Solar in Mexico is not a question of when, but rather how much and how fast."
>
> — ***Amit Ronen***

The Energy Advisor *welcomes responses to this Q&A. Readers can write editor Gene Kuleta at gkuleta@thedialogue.org with comments.*

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